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ABSTRACT

These materials were developed for a 20-hour class on computers in a cement manufacturing plant. (In the workplace, they were used in conjunction with Typing Tutor 6 software.) The course is intended for complete beginners who need to use computers on the job. Each of the four modules can be used alone. The document begins with a pretest and posttest. The first module gives an overview of computer concepts. Its appendices describe the following: uses of computers, computers in banking, operating systems, and programming languages. Module 2 addresses keyboarding; it includes two diagrams illustrating types of keyboards. Module 3 is a glossary of computer vocabulary. Module 4 discusses care and maintenance of personal computers. (SK)

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ED 424 447

PROJECT VISIONS2:
LEARNING FOR LIFE INITIATIVE

USING THE COMPUTER AT WORK

COMPILED BY: MARY LOU TAYLOR, INSTRUCTOR
AT HOLNAM, INC., HOLLY HILL, SC

FOR
A NATIONAL WORKPLACE LITERACY GRANT
RECEIVED BY
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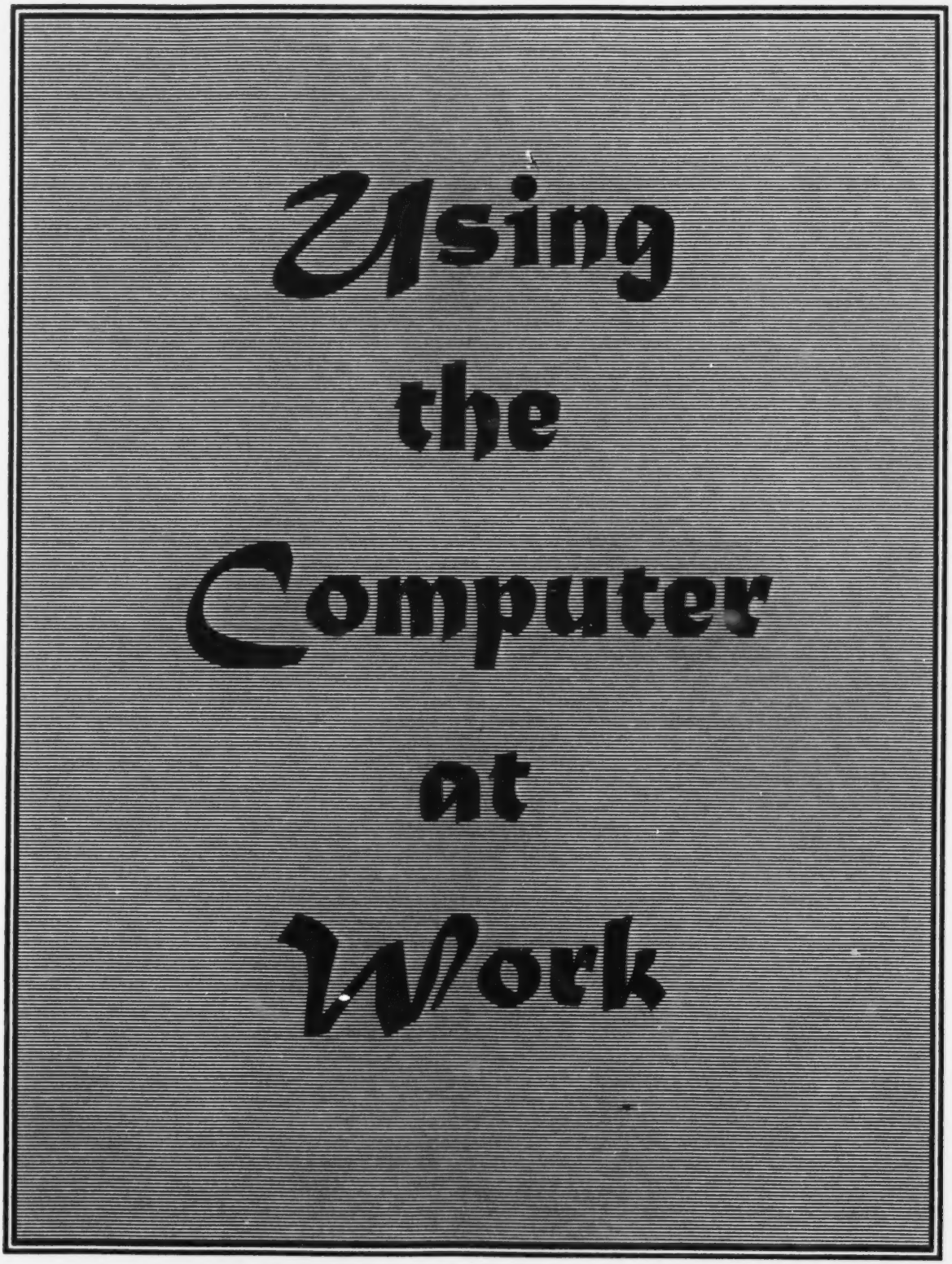

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Using the Computer At Work
Course Outline

Course Title: Using the Computer At Work **Instructor:** Lou Taylor, ext. 241

Class Hours: 12:45 - 2:45 P.M. and 3:15 - 5:15 on Mondays through Thursdays

Class Location: Main Office Building, 2nd floor classroom

Class Size: Class size is limited to five participants per session. This is due to the fact that there are only 5 computers available in the lab.

Contact Hours: 20 hours - delivered in 10 two-hour sessions

Course Description: This course will familiarize the participant with the basics of computer operation. Major emphasis is on the understanding of computer terminology and keyboarding skills. Each class will allot time for both the practice of keyboarding skills and class discussion of assigned reading material.

Why Take This Course: This course is designed for those who are true beginners on the computer. If you are interested in learning how to use the computer but are confused about the terminology and the keyboard scares you - then this is the course for you. However, if you know a little and would like to improve your knowledge - then you will also do well in this class.

Materials: The text with related reading materials will be provided to participants at the first class meeting.

Grading System: This is a non-graded course - you cannot fail this one! There will be a pre-test and a post test to assess growth in knowledge of material covered. You will also complete a course evaluation and state whether or not you learned in the course.

Confidentiality of Test Scores: Test scores will be shared with the participant. Pre and post test scores will be reported to the company; however, participants will not be listed by name.

Attendance: It is recommended that an 80% attendance rate be followed. Every absence causes you to miss material and practice - keep that in mind.

Class Schedule: A calendar of scheduled class meetings will be provided to you at the first meeting. All effort will be made to meet individual work schedules. If you need to make adjustments, ask and adjustments will be made.

Course Objectives:

- The participant will learn basic computer terminology and demonstrate competency through improvement shown on post test scores.
- Participants will demonstrate learned proficiency of keyboarding skills through gains tracked on Typing Tutor 6.
- The participant will verbally identify the key components of computer hardware.

For the Instructor

This curriculum was compiled for use at the Holly Hill plant of Holnam, Inc., a manufacturer of Portland Cement. The general information included here gave the background information about computer usage and some history. It was used in conjunction with Typing Tutor 6, a computer program for keyboarding, available from Que Software, 201West 103rd St, Indianapolis, IN, 46201 or phone (317) 581-3500.

Special recognition and thanks go to Christel Sparks of Milwaukee Area Technical College and Jeanne Johnson of Gateway Technical College and their industry partners who developed the *Computer Literacy* curriculum after which this was liberally modeled. Additional information included in this curriculum was gained from the South Carolina Department of Education's School to Work Computer curriculum. Other information was garnered from a variety of sources and from conversations with computer "experts" at the Holnam plant.

As the workplace is modernizing, more and more computerized equipment is being introduced into the workplace, and the time is fast approaching when workers will be required to enter and retrieve information and/or data on PC's located throughout the plant's facility. Workers at the plant have varied educational backgrounds and this curriculum is designed to take this into consideration. The information in this handbook was duplicated and given to each class participant. All the written information was the basis for class discussion; participants were assigned reading prior to class meetings. The class discussion was led by the instructor/facilitator, and free and open discussion of the topics was allowed. This led to some very interesting discussions and hopefully the clearing up of some myths and misinformation about computers and their use.

The classes all started with a discussion of part of the printed information and finished with individual time on the computer using Typing Tutor 6. The typing tutor was great as it allowed each participant to work at his/her own pace. Within this program, participants also learned how to use the drop-down menus and short-cut keys that are basic tools for any computer course and that are found in all computer programs.

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Introduction to Computers at Work

Computers are no longer restricted to managerial and clerical functions. As both factories and service industries automate, the direct entry into, and access of information from, computers by all types of personnel has become commonplace. *Computer literacy has become a basic skill.*

Within the framework of this project, computer literacy is defined as the prerequisite knowledge an individual needs to master computers in school or on the job. The following modules are not intended to replace formal training, classes at colleges, or even the tutorial programs that are available for self-study on the computer.

Formal classes often presume knowledge even though no prerequisites are stated. These modules provide basic information by giving an overview of computing issues. The participant, therefore, receives proper preparation for computer studies through a college or company training center.

Many participants already use computers on the job but were never properly introduced to them. The modules will serve as an after-the-fact orientation. As a result of proper tool usage, productivity will increase. Communications with managers and support staff will be clarified as the user's ability to identify problems and functions increases.

Keyboarding is an important part of this course, and it will be incorporated into each class. As with every new skill that you learn, you will need additional practice to keep up with your new keyboarding skills. If you have access to a computer at home or work, practice keyboarding every chance you get.

Each module of this course will stand alone. They were developed for your use as a reference as you continue to learn more about computers. Keep these modules and use them for reference in the future.

Keyboarding is a self-study, and each class will spend approximately one (1) hour on developing this skill. This sixteen hour course will not provide all the time needed to develop into a proficient typist, but you will learn the basics. The more you use a skill the better you become at it, so practice is recommended to show real progress.

Using Computers at Work
Pre-Test

Name: _____ Date: _____

Directions: Mark each of the following statements as "T" for True or "F" for False.

1. ____ Software is easily bendable computer cables and parts.
2. ____ The personal computer is designed for a single operator.
3. ____ Microchips played an important part in the computer revolution.
4. ____ Turn equipment off when not in use for two hours or more.
5. _____ Function keys can move the cursor in any direction.
6. ____ The CTRL key is always used in conjunction with another key.
7. ____ Vents in the CPU prevent overheating by allowing air circulation.
8. ____ The CAPS LOCK key capitalizes all letters.
9. ____ The numeric keypad controls the movement of the cursor on the screen is the NUM LOCK key is off.
10. ___ Printers are input devices.

Directions: Match the following.

11. ___ file	A. Microcomputers
12. ____ RAM	B. Uses the same operating system.
13. ___ Personal Computers	C. Allows for rapid entry of numbers.
14. ____ spike	D. Power Problem
15. ___ Write-protected	E. A file server that coordinates functions.
16. ___ Numeric Keypad	F. Storage that is affected by power failures
17. ___ LANs	G. Anything created on a computer.
18. ___ Compatible Computers	H. Prevents changes to a disks contents.

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Using Computers at Work
Post Test

Name: _____ **Date:** _____

Directions: **Match the following.**

1. ___ File
2. ___ RAM
3. ___ Mainframe Computer
4. ___ LAN
5. ___ Spike
6. ___ Burn-in
7. ___ Mouse
8. ___ CPU
9. ___ Keyboarding
10. ___ Hardware
11. ___ Software

A. Items that can be touched and held: i.e. mouse, printer, CPU, monitor, etc.

B. Power problem

C. A generic term for anything created on a computer

D. One of the main power problems that can happen with a monitor

E. Central Processing Unit or the brains of the computer

F. Large System Computer

G. Contains the instructions for the computer

H. Local Area Network or a system with a file server that is coordinates functions on several computers at the same time

I. A pointer device that moves the cursor and is used to choose menu items

J. typing information into a computer

K. Random Access Memory or where data is stored until it is saved, this memory is emptied when the computer is cut off

Directions: **Mark each of the following statements "T" for true and "F" for false.**

12. ___ The control key is always used in conjunction with another key.
13. ___ The CPU is the brains of the computer.
14. ___ The personal computer is designed for a single operator.
15. ___ The Numeric Keypad allows rapid entry of numbers.

16. ___ Dirt, Static, and Power are three problem areas that can cripple your computer components beyond repair.

17. ___ Computer equipment is a major investment for companies.

18. ___ The mousepad saves wear and tear on the mouse.

Computer Overview

Module 1

Computer Overview

COMPUTERS YESTERDAY The computer evolved out of necessity. The first major computer application involved the 1950 census. The increase in the USA's population made the manual calculation of the census statistics virtually impossible. The 1950's data was entered into a computer. The processing time was reduced to a small fraction of the effort required to complete the census statistics manually.

The older computers were large and slow by today's standards. Personnel filled out forms. Information on these forms was entered on keypunch cards. The cards were sorted and run through the computer. This was a cumbersome process.

COMPUTERS TODAY Today's computers are significantly smaller, faster, and more powerful than older models. They are the result of the microchip revolution. Many areas of modern life have been affected by the introduction of microchips in programmable controls or computers. Do you already use computers directly or through businesses you patronize? (See Appendix A for examples.)

The use of keypunch is dwindling as direct entry of data into a computer terminal increases. Direct entry makes computers more cost-efficient. The information is also available in a more timely fashion. Timely information gives highly automated businesses a competitive edge over those that rely on manual methods and/or keypunch.

CATEGORIES OF BUSINESS COMPUTERS There are three main categories of business computers: personal computers, mid-range computer systems, and large systems. Some companies, such as IBM, offer computers in all three categories. Others, such as, Apple, offer computers in only one or two categories.

The personal computer (also called the microcomputer) is designed for one operator at a time. This is the least expensive and least powerful computer. There are two main types in business. The IBM and compatible models have the largest market share. The Apple Macintosh is the second major type. The other types in this category are for school, home, or specific job use.

The next category is the mid-range computers (also called mini-computers). These are designed to allow a number of operators to work simultaneously on various jobs. Data is compiled in a central location. The data is easily available to all. Devices such as printers can be shared. This power costs much more than personal computers.

Many companies that had a number of personal computers found that they needed to compile and share data. They found that it was not always necessary to move to mid-range. In some cases, these companies can purchase a LAN (Local Area Network). A high-end personal computer becomes a file server. The other personal computers are attached with cables to the server. The server is the central repository for shared data and controls all centralized operations for the individual personal computers. Printers can be shared. If this approach is powerful enough, it is very attractive from a cost/benefit viewpoint.

The large systems (also called mainframes) are the most powerful, fastest, and most expensive of all. For many companies, the power and speed is crucial to staying competitive. These systems can handle many operators and tasks simultaneously. Devices are also shared. Banking and insurance are two industries that rely heavily on large systems. (See appendix B for an example.)

The choice of the proper computer must be based on factual data processing needs. Paying for much more power than needed or buying with no room for growth are both equally bad. Too powerful a system, and the company spent unnecessary money. Too small a system, and the company will quickly be limited in what it can do before needing to replace the computer with a larger one. Computers pay for themselves if chosen wisely.

PARTS OF A COMPUTER Most of the learning centers are equipped with personal computers. Once one computer system is mastered, similar parts and functions are found on all types of systems. When working on a new system, match up the new functions and components to those that are familiar. This will make the transition much easier. Appendix E pictures a typical computer configuration. The vocabulary module explains what each part does.

PROGRAMS AND PROGRAMMING LANGUAGES Just as important as choosing the right computer, companies must choose the right programs. Computers are useless without programs to run them. Programs run in the computer's memory. Many

companies decide on the programs they need first, then choose a computer that can run those programs.

The first program loaded into the computer's memory is the operating system. All computers have an operating system. (If you want a more technical explanation, see Appendix C.) If computers can use the same operating system, they are compatible. This operating system coordinates the computer components, other programs and data. Other programs include: programming languages for custom applications and canned-software which almost anyone can use. (Appendix D gives a more technical explanation and the Vocabulary module also has related information.)

Be sure to know which type of computer language your computer is programmed with when purchasing programs. All you need to know is if your computer is IBM or IBM compatible; if it isn't, then what type of computer do you own (i.e.: Apple, Macintosh). IBM and IBM-compatible computers are programmed in the same language, and programs for them are not interchangeable with Apple or Macintosh computers. Apple and Macintosh computers are programmed in different languages, and their programs won't operate in an IBM or IBM - compatible computer. It would be like trying to run a Ford with Toyota replacement parts in the engine, it wouldn't work!

COMPUTERS AND BASIC SKILLS Although computer literacy is now considered a basic skill, true competency with computers hinges on competency in other skill areas . This becomes evident as one considers these other skills in relation to computer functions in the workplace.

The effective reading of manuals is necessary to understand programs and components. This reading is often very technical. Proper use of table of contents, glossaries, appendixes, and indexes is crucial to finding information.

Keyboarding skills are necessary to operate any computer. Speed is part of the skill, but accuracy is also important. Since programs allow for the editing of entries, the operator must proofread to make sure that the information is accurate. Lack of this speed diminishes productivity gains. Lack of accuracy leads to wrong information being entered. Decisions based on these entries could be faulty.

The writing process has been automated with word processing programs which allow for the easy editing of text. This is one of the most commonly used features of computer programs. If the operators have no concept of what constitutes good writing, this program will serve to help them write badly more quickly.

Many word processors have other productivity features which also have limitations. Spelling checkers are great for some typing errors. If the operator types "too" instead of "to", or "Form" instead of "From", both of the words are valid and won' t be flagged as an error. For this reason, you need to proofread your writing done on a word processing program. Proofreading involves the careful and critical review of your writing for the purpose of making corrections. Good proofreading skills will help you to spot and correct mistakes. Vocabulary may be helped by an electronic thesaurus, but operators must know the connotations as well as the denotations of words to avoid embarrassing themselves with inappropriate word choices.

Grammar checkers are programs which point out grammar errors. They work as an add-on with many word processors. If the operator doesn't have a sense of language and good communication skills, the form will be fine, but the substance will be lacking. In other words, the computer can't think for you. If you don't know how to write a correct sentence, it can't do it for you.

Computations are often automated by using spreadsheets. These are programs that allow for the creation of formulae. Data is entered and automatically calculated by the formulae. An operator may instruct the computer to do something that is mathematically possible, but not logically correct. When corporate decisions rely on faulty math, the decisions will also be faulty. Operators must know properties of number systems, laws of math theorems, order of operands, and proper mathematical and algebraic notation. Notation includes use of ( ) for parenthesis, + for plus and positive, - for minus and negative, / for division, and * for multiplication.

Databases are the heart of corporate data. The financial picture is a combination of accounts receivable, accounts payable, assets, various costs, and other factors. Proper databases design allows for an accurate and timely picture. This information is used in making day-to-day operating decisions. Math, relational, and analytical skills are important.

Automated drafting and design hinge on understanding blueprints and design principles. Up to 80% of drawing time is saved with these packages.

Business graphics (charts and graphs) have great impact in decision-making, reports, and advertising. If faulty data is used, the graphics will be faulty. Analysis skills are needed to choose what should be emphasized and the best method of presentation.

The information on databases, automated drafting and design, and business graphics is for your information. It is unlikely that you will need these programs on your job.

There are so many computer tools available today. Operators must develop critical thinking skills to aid in defining the basic problem. Once the basic problem is defined, choice of the proper tool and solution is easier.

Be honest about basic skills that are lacking or need improving. Work on these skills along with computer skills for maximum success.

COMPUTERS AND CAREERS There are traditional computer-related jobs such as programmers, system analysts, computer repair technicians, and many others. Many people like computers but do not want a data processing job. Today, most other fields have incorporated in day-to-day operations. Drafting and accounting are both heavily automated. When choosing a career, check out how computers fit into that career.

For more information, check what career information is available at the learning center, through your employer, career counseling centers at schools, and most importantly, by asking people who currently work at jobs with computers. Consider the amount and cost of training and compare to the average starting salary for any career that interests you. There is a broad range of starting salaries and career paths in any field. While some computer jobs pay very well, many are more average in pay.

Appendix A:

Some Possible Uses of Computers and PLU's (Programmable Logic Units):

Late model cars with computers.

Auto Repair Shops use computers to diagnose problems

Gas Pumps

Programmable VCR's

Programmable Microwave Ovens

Home Computers

Using computers on the job

Using computers as part of a class

ATM - Automated Teller Machines for use with bank cards (i.e.: Honor, Relay)

Any store that uses bar codes scanners to read item number and price. This produces an itemized cash register receipt and send the information on the sale to the store's computer.

What other uses aren't mentioned here? Look around for computers and there many uses.

*PLU's are not true computers. They are circuit boards. The programmable VCR is an example of a PLU.

Appendix B:

The Banking Industry's Use of Computers for Checking Transactions:

Hundred of millions of checks are flying across this country daily. As the world became smaller due to faster transportation and communication facilities, banks evolved from neighborhood banks into world-wide banks. Banks cash checks for accounts at other banks anywhere in the world. The checks must be sent to the other banks for collection.

To facilitate processing the volume of checks, magnetic ink character recognition (MICR) and high-speed check sorters were developed. When checks are printed, the bank number, account number, and serial (sequence) number are printed in a standardized area at the bottom of the check in magnetic ink. The checks are read by the high-speed check sorters, and the data is captured by a computer that drives the check sorter.

Checks from other banks are sorted and sent to the other banks for collection. Larger banks will provide this service for a fee to smaller banks to justify more expensive and sophisticated data processing technology.

Banks send computerized statements and the customer's checks to the customer. Statements show check amount and balances. The checks must be sorted by customer account number and combined with statements for mailing.

A process known as "imaging" is currently available. The check image is captured electronically when the check is first processed for initial data capture. The electronic image is used to print an exact duplicate of the check that is one fourth the size of the original on the customer's statement. The costs, of sorting and mailing the checks to the customer, are eliminated.

The costs of "imaging" can only be justified by processing large volumes of checks. Providing the same service to smaller banks helps to justify the technology costs such as "imaging". Consumer demand for "imaging" could force the banking industry to provide this service. To be competitive, banks must satisfy customers in a cost-effective way.

The volumes of checks could be further reduced by electronic funds transfer (EFT). An example of EFT is the automated teller or cash dispensing machine. EFT is truly "unaccepted" in this country. People are more comfortable cashing checks which appear tangible to them, rather than lose control by using "electronic" money. Banks are extending services offered at these machines to

include stamp and ticket dispensing. This reduces the per transaction cost while increasing revenues. The use of the machine becomes more attractive and attempts to lure the checkbook away from the customer to further reduce the per transaction cost and increase revenues. This use of computer technology has not been overly accepted by customers yet, so we may not be familiar with this option, but we should be aware that it exists.

These and other advances are made possible only in part by new technology. The benefits have to outweigh the costs of the new technology. This is the only way a company can justify making changes. Acceptance by the workers and consumers plays an equally important part. Although the example given dealt with banking, these factors are true for all types of businesses.

Appendix C:

The Operating System:

An operating system is a group of specialized computer programs that manage the functions performed on a computer.

The operating system has an operator communications facility. The operator can instruct the computer to perform functions. Functions are work performed with a computer. A function can be a system utility such as a media copy or printing a report. Running a payroll application system is another function that can be requested by the operator. The operator can query the operating system to determine various function and system states.

Input from and output to various media and devices is managed and scheduled by the operation system. Without an operating system, all computer programs would be required to perform this redundant management.

Some operating systems allow concurrent functions to be active. Controlling the priorities and allocation of resources (i.e. computer, processor, input/output media, etc.) is the responsibility of the operating system. Without this concurrent function capability, the computer resources that are available are unused. By overlapping functions, the elapsed time to perform the same amount of work is reduced. Work single-threaded through a computer could use only 20-40% of available resources over a period of time. If the computer is loaded to 40-80% of capacity, the work can be accomplished in half the time. It is impossible to predict the exact reduction in elapsed time. This is due to the overhead of contention for resources and increased management of the resources. Elapsed time is dependent upon the mix of functions being performed.

Overloading the capacity of the computer can result in further degradation of the elapsed time. While resolving the problem of under utilization by loading the computer, care must be taken not to overload the computer. When overlapping occurs, the system can become bogged down with "unproductive work" while attempting to resolve the overload condition. The elapsed time in some case could exceed the single-thread environment elapsed time.

Some operating systems can record data about resource usage and various events. The recording takes resources that reduce the amount of available resources for other functions. However, it can be essential for planning increased capacity and determining processing bottlenecks in LAN's, Mid-range and large systems. The system can be fine-tuned based on the data extracted from the recorded data. The guess work is removed when capacity planning is done.

Appendix D: Programming Languages

To understand programming languages, the language spoken by a computer must be understood. A computer can be compared to a light and a light switch. The switch can turn the light on or turn the light off.

The computer can also be compared to the human brain. The computer has a memory. The memory is made up of bits. The bits can be compared to the light. The bits are either on - presence of an electrical charge - or off - absence of an electrical charge.

Computer memory bits are combined into groups. Many computers combine 8 bits into a group called a byte. A byte can represent 256 unique computer functions (add, subtract, etc.) or 256 unique characters (the numbers 1-9, the letters A- Z and other symbols).

Computer memory bytes are often combined into groups of 2, 4, or 8 bytes to represent numbers in binary or hexadecimal format. The first bit is used as a sign bit - off represents a positive number (greater than 0) and on represents a negative number (less than 0).

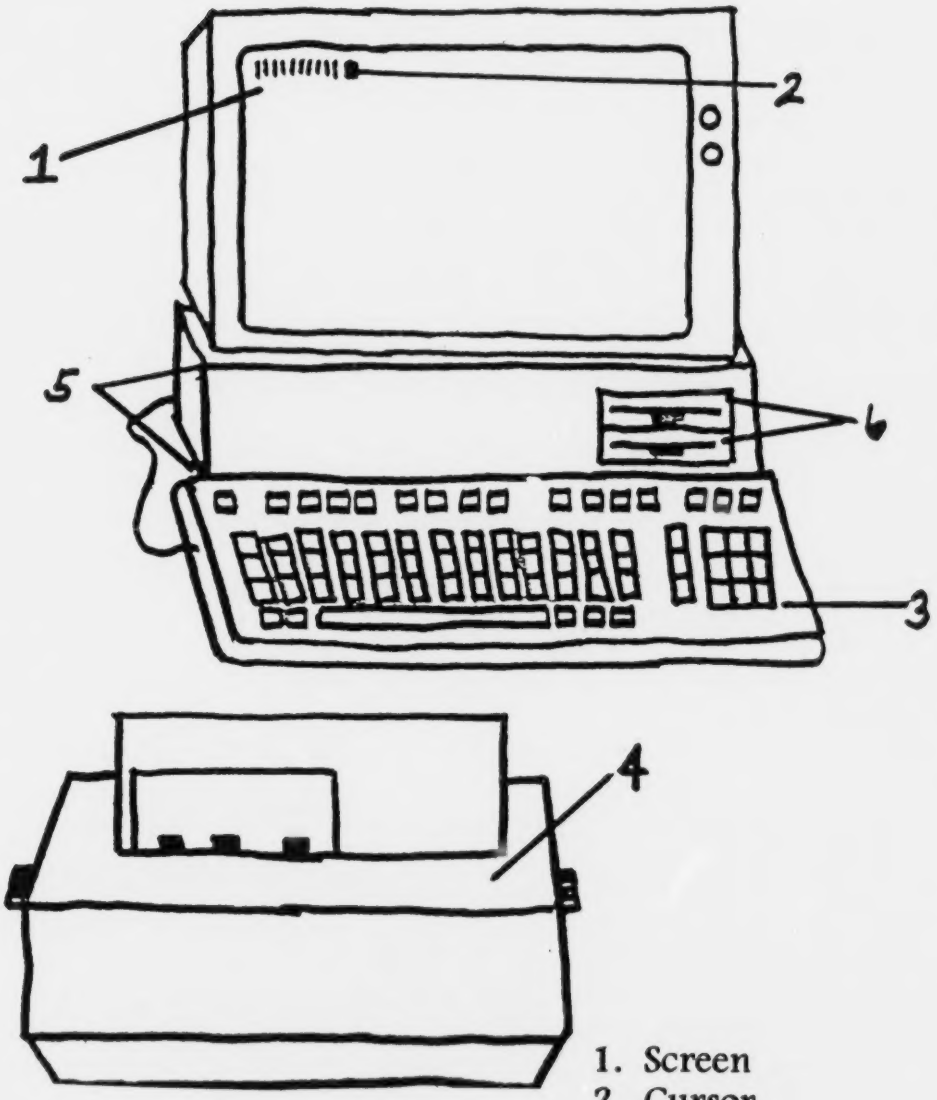
The language spoken by the computer is called machine language. Other programming languages were developed using the machine language. Programs known as assemblers, compilers, translators, and interpreters were developed to convert non-machine language programs into machine language. The first of these programs were written in machine language since no other language was developed. It was used to develop other non-machine languages and translators for the languages.

A Program is a series of defined computer functions that perform calculations, sorts, and manipulations on data. Programs request input data from, and send output data to, various media. Programming languages are used to create programs. Programs created in a specific programming language are called "source" programs. Source programs are processed by other programs that convert the programs (generally from any other source language) to create "executable" programs. Programs can be developed in smaller pieces and the pieces can be combined in this manner. The program development task can be split amongst multiple programmers to "speed up" the development process.

Programs can be developed for specific or general applications. The specific programs are for a certain task in a certain company. The general programs are referred to as "canned software" which can be used by virtually anyone in any company.

Appendix E:

The Microcomputer and Printer



1. Screen
2. Cursor
3. Keyboard
4. Printer
5. Central Processing Unit
6. Disk Drive

Keyboarding

Module 2

Keyboarding Information

The main function of the keyboard is to allow you to communicate with the computer. Two of the most common keyboard styles for MS-DOS microcomputers are the ***standard keyboard*** (see Appendix A) and the ***enhanced keyboard*** (see Appendix B). The location of the function keys and a separate cursor pad area are the primary differences between the two keyboards.

The ten keys on the far left of the standard keyboard or the twelve keys on the top row of the enhanced keyboard are called ***function*** keys. Each function key has a special purpose that is different for every software package, such as **Lotus 1-2-3** and **WordPerfect**.

Other divisions of the keyboard are:

1. The ***typing area:*** identical to the typewriter keyboard.

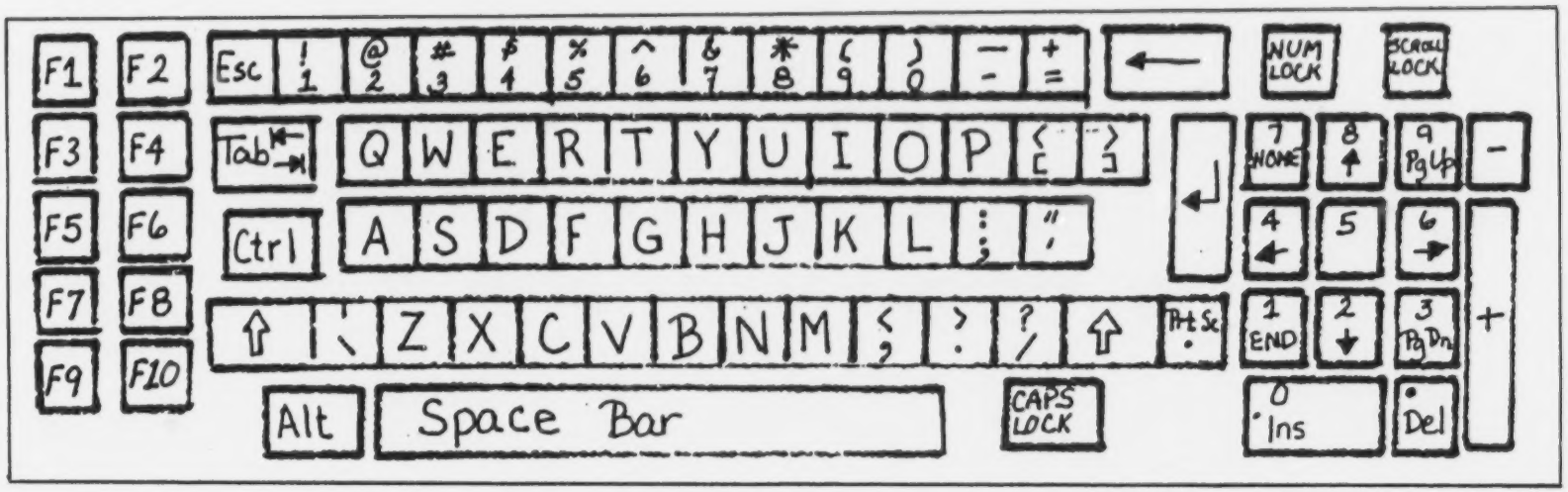
2. The ***numeric keypad:***
   a. allows the rapid entry of numbers when the NUM LOCK is on.
   b. controls the movement of the cursor on the screen when the NUM LOCK is off.
3. ***Special Keys:***
   a. ESC (escape) = cancels certain operations.
   b. CTRL (control), ALT (alternate), and Shift = when used in conjunction with another key, expands the function of the keyboard.
   c. CAPS LOCK = capitalizes all letters. Still need to use the shift key to get special symbols like the add sign (+) and the pound sign (#).
   d. NUM LOCK = determines whether the arrow keys or the digit keys on the numeric keypad are active.
   e. PRT SCR = prints what is currently on the screen to be printed when using an extended keyboard. On the standard keyboard, use SHIFT + PRINT SCREEN.
   f. BREAK = cancels certain operations. This is a CONTROL and SCROLL LOCK on the standard keyboard and CONTROL and PAUSE on the enhanced keyboard.

4. The ***Cursor Pad*** determines the direction and location of the cursor on the screen.

Guidelines and Helpful Hints:

1. Do not use the small letter "l" for the number one "1".
2. Do not mix the capital letter "O" and the number zero "0".
3. The cursor key indicates where the next character will be printed on-screen; the back-space key erases characters.
4. Use a gentle touch on the keys.
5. Holding down a key causes repetition.
6. CTRL, ALT, and SHIFT keys are first held down and then the other appropriate key is struck.
7. Backtabbing can be accomplished by holding down the SHIFT key, then hitting the TAB key.
8. Make sure wrists are at the keyboard level to eliminate strain.

Appendix A:
Standard 84 Keyboard



Note: The "NUM LOCK" key is also used as the "PAUSE" key. The "SCROLL LOCK" key is also used as the "BREAK" key.

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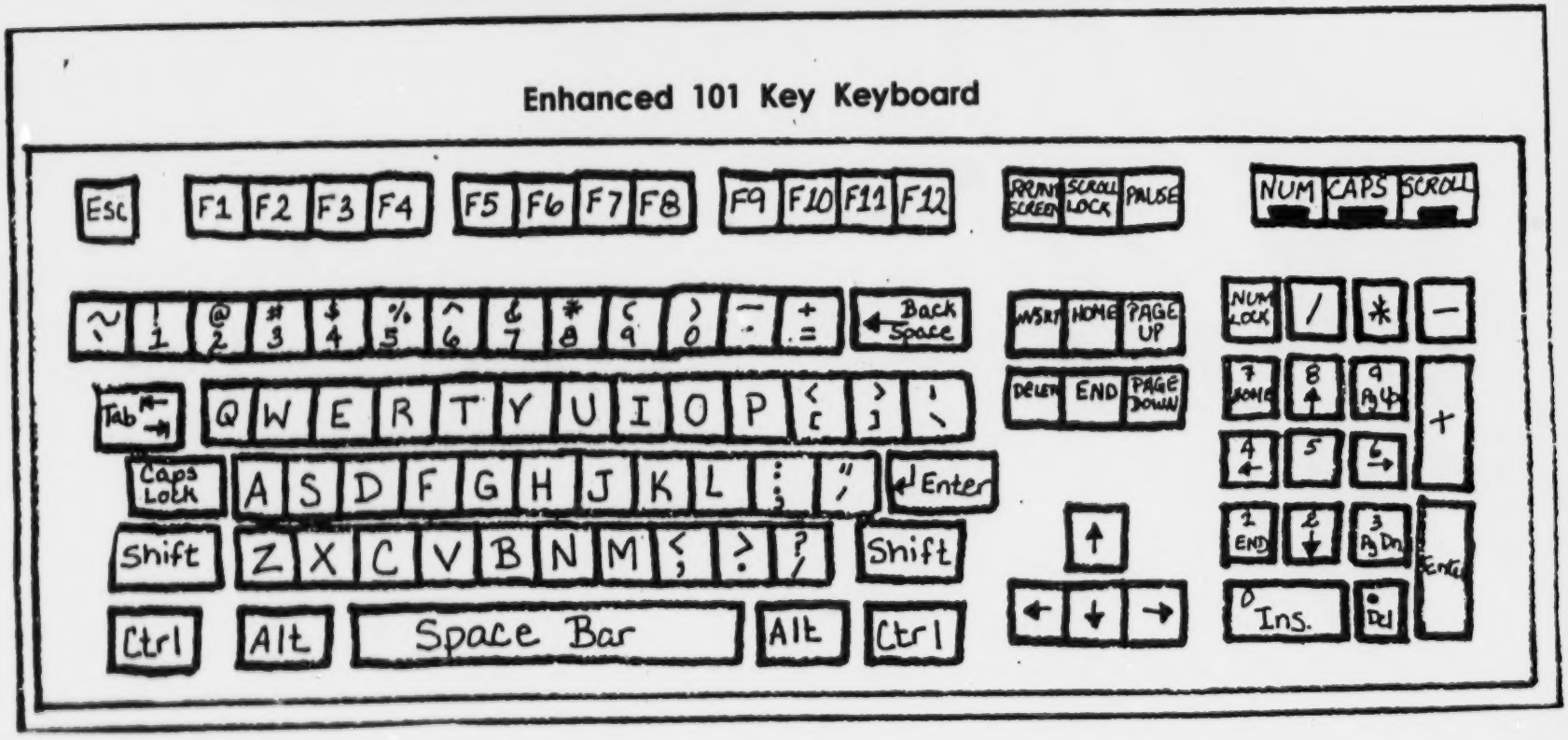
Appendix B:
Enhanced 101 Keyboard



Note: The "PRINT SCREEN" key is also used as the "SYS RQ" key. The "PAUSE" key is also used as the "BREAK" key.

Computer Vocabulary

Module 3

Computer Vocabulary

Alternate Key - has no function by itself; is used to change other keys into application dependent of special function keys.

Ascending Order - increasing or forward order i.e.: 1 to 10 and a to z

Backup - copy programs or data from one disk onto another disk in case the first one is damaged.

Batch - a group of transactions

Bit - smallest unit of memory. 8 bits = 1 byte.

Boards or Cards - Refers to circuit boards that are inside the computer. They are needed to run printers, the monitor and other devices.

Boot - This term refers to the copying of the operating system into RAM. Cold or hard boot occurs when the power is turned on. Warm or soft boot employs the reset button or keys when the power is on.

Byte - a character or keystroke worth of memory or disk space

CAD - computer assisted drafting

CPU (Central Processing Unit) - Central Processing Unit. This is the brains of the computer. On microcomputers, it is the box that contains the drives.

Cell - the intersection of a row and column in a spreadsheet program

Communications - allows computers to talk to each other across phone lines.

Computer - a system designed and organized to automatically accept and store input data, process the data, and produce output results under the direction of a detailed, step-by-step stored program of instructions.

Control Key - has no function by itself; is used to change other keys into application dependent special function keys.

Control Unit - a part of the central processing unit (CPU) that processes information

CRT - cathode ray tube; another name for the video display terminal or monitor

Crash - the disk is trashed, possibly to the point that it will need to be replaced AND all the data on it is lost. This occurs when the heads bump into the disk.

Data - information, i.e.: checkbook entries

Data Bases - a group of independent data files; good for when data must be sorted or grouped and analyzed in various ways. You can create a base form and fill in the blanks, which are called fields. Each individual form is a record.

Default - The status quo, how things are initially set up. They can be changed as desired, i.e.: printing 8.5 by 11 is the default setting, but it can be changed to 11 by 8.5 to print on the paper sideways (called landscape).

Delete Key - normally will delete the character that the cursor is positioned on

Descending Order - Decreasing or backward order, i.e.: 10 to 1 and z to a

Disk - short for diskette. This is a form of memory. It is the magnetic storage device for saving data created in RAM. Disks are either floppy (removable) or hard (installed into the computer). Hard disks are also called fixed disks. Floppy disks for microcomputers come in 2 sizes: 3.5" and 5.25". Floppies are either single or double sided, double or high density. This corresponds to disk drive sizes. The disks and drive sizes must match up.

Disk Drive - operates like a turntable but has a magnetic head instead of a needle. The disk revolves inside and the heads read and record information between the disk and the computer.

Diskette - a floppy disk

Down - equipment is not usable for some reason

Down Time - Length of time the equipment is not usable

Download - Bringing data from an attached computer to a computer at worksite.

DP (Data Processing) - manipulating the data, i.e.: balancing a checkbook. Can be done manually or with a computer.

Drawing - Can be anything from simple art to automated drafting.

EDP (Electronic Data Processing) - Computerized data processing

End Key - usually moves the cursor from its present position to the last character in the same line.

Errors - Mistakes made by people or equipment malfunctions. Usually a person's fault.

Escape Key - usually application dependent

FAX - a system used to transmit pictures, text, etc., between geographically separated points.

Files - generic term for anything created on a computer; can include data, program, library, or object files

Format - in word processing, may apply how characters, paragraphs, and pages will look.

Graphics - Used to create charts and graphs.

Hardware - These are items that can be touched and held.

I/O - Input / Output

Initialize - format; to prepare a disk to accept information.

Input - Information that goes into the computer, i.e.: typing on the keyboard.

Input Device - hardware that obtains data and places it into the computer system for processing.

Install - Can refer to putting components together or to setting up programs to work with a particular computer and include chosen default settings.

K - stands for kilobyte, or 1,000,000 bytes by convention really is 1024 bytes.

Keyboard - allows information to be typed into the computer.

Keyboarding - typing information into the computer.

Load or Launch or Read - These terms refer to the copying of programs into RAM.

Local - Processing done at a worksite computer.

mb - stands for a megabyte (1,000,000 bytes), although abbreviated mb, in conversation say "meg".

Memory - inside the computer there are three kinds of memory:

(1) *RAM* = Random Access Memory, also referred to as user memory or working storage. This is where data is created and modified. It is electronic in nature and empties when the power is cut.

(2) *ROM* = Read Only Memory. It contains instructions built into the computer for startup.

(3) The third type of memory is on a *disk*.

Menu - A collection of commands or programs executed upon choice.

Modem - The physical device used with communications packages. It plugs into the computer and a phone jack. The computer can now call another computer with the modem.

Mouse - Pointing device to move cursor around screen or to choose menu items. It works like a joystick in video games.

Monitor - an output device; same as CRT or video terminal.

Mouse Pad - A foam pad covered with cloth or vinyl. Used under the mouse to lessen wear and tear and increase the ease of use.

Numeric Lock - a toggle switch that allows use of the numeric keys on the right side of the keyboard.

Output - Information that comes out of the computer, i.e., printing a memo.

Output Device - those parts of the computer system that display information.

Page Down Key - usually used to display the next screen page.

Page Up Key - usually used to display the previous screen page.

Pagination - enables the computer to automatically number the pages of a document.

Peripheral - This is the term used for any device that is not the CPU.

Power Fluctuation - power surges in the electrical lines.

Printer - allows information in the computer to be printed on paper.

Program or Software - A system of instructions that allows automation of functions. Although the instructions can be viewed on a screen or printed on paper, you can't see or touch the actual instructions as they are magnetic codes stored on disks.

Remote - Processing done at a computer in another location to which your computer is attached. Common in networks, minis, and mainframes.

Restore - Copy programs or data from the second disk onto the original disk when the first one is damaged.

Save or Write - copy programs or data onto a disk.

Scanner - an input device.

Screen/ Monitor/ VDT/ CRT - Any of these four terms are used to name the box that looks like a television, which allows the operator to see what is being entered into the computer or to look through information that is already there. VDT= Video Display Terminal. CRT= Cathode Ray Tube.

Scroll Lock Key - a toggle switch that allows text to be moved on and off the screen.

Search and Find - locates a specific character string (word, words, or phrases).

Search and Replace - locates a specific character string and replaces it with a different character string.

Spreadsheets - This takes the place of an accountant's paper for powerful number crunching. Spreadsheets have row and column format. You can create formulas and enter data which is automatically calculated.

Software - contains the instructions for the computer system.

Sort - causes the computer to arrange existing information in a variety of ways, e.g., alphabetical, numerical, ascending, etc.

Spelling Checker - checks each word against a list of correctly spelled words in a dictionary.

Tape - another magnetic storage device, commonly used to backup hard disks.

Transaction - each separate entry

Turnaround Time - the length of time from beginning to end of a task

Upgrade - The latest version of software or a newer model of hardware.

Upload - Sending data from a worksite computer to an attached computer at another location.

Vaporware - This term includes anything that is talked about but not on the market. Hardware and Software companies often try to sell based upon what they are about to offer; this can backfire on the consumer who counts on this merchandise being available in a timely fashion. Vaporware is often late and sometimes never comes into being, and when it is available it may not perform as expected.

Video Terminal - an output device similar to the CRT or monitor.

Warm Boot - restart the computer without using the off/on switch (key ctrl + alt + del simultaneously).

Window - allows the screen to be split into several parts to view different areas of a program.

Word Processing - text creation and editing for letters, memos, reports and any other type of writing.

Word Wrap - causes the last word to move to the next line when that word goes beyond the right margin.

Caring for Your PC

Module 4

Caring for Your PC

Computer equipment is a major investment in terms of purchase price and the labor invested in creating and maintaining corporate data. Protecting this investment is crucial. Maintenance is economical and simple compared to what happens if data and/or equipment are lost.

Each company and manufacturer has its own guidelines for computer system maintenance. This module gives suggested instructions for maintenance and explains the potential benefits. If a company's approach or a manufacturer's manual is different, resolve any potential conflicts between this document and the workplace environment. Established company guidelines must take precedence.

DIRT, STATIC, and POWER These are three problem areas that can cripple your computer components and/or data beyond repair. Some general rules apply to all parts of a computer system.

Dirt is easiest to control. Equipment should be in a non-smoking, fairly clean environment. Keep the system away from open windows, heat vents, air conditioners, and radiators. Do not eat or drink around the system to prevent damage from spilled liquid or food particles falling into components or onto disks. Beware of the placement of plants, decorations of office supplies which could fall or spill onto or into systems. Make sure hands are clean before working around computers. Dust covers are common protection for use when power is turned off. If dust covers are used with the power on, overheating can occur.

Controlling power problems is a controversial area. A company can do nothing or spend thousands of dollars. Companies have to decide on the probability that something will or won't happen to their equipment and data. The costs of solutions must be balanced against the costs of damage and/or loss.

The best protection in terms of cost and benefit is to have operators save their work frequently. When this approach is used in conjunction with a well designed and consistently maintained backup system, then the data is safe even when the equipment fails or the operator destroys data inadvertently.

Some environments produce a lot of static. This can damage equipment and data. Often, nothing can be done about the environment. Anti-static mats under components and the operator's chair and related anti-static items can diffuse potential problems. Make sure that equipment is properly grounded to minimize static problems.

Protecting equipment against power problems is the tricky part. There are numerous devices sold for power protection. The range of costs can vary significantly. Buying a protection device can lead to a false sense of security. All have different types and degrees of protection. If the problem is not one the device is designed to handle, or is of a greater magnitude that the device's limits, damage and/or loss can still occur. After a power problem, operation may still be possible, Damage and/or loss won't be immediately apparent.

There are four basic types of power problems:

1) BROWNOUTS - The power amperage drops temporarily. This may cause a system reset which results in the loss of unsaved data; this may cause a memory scrambling resulting in using and saving faulty data.

2) SPIKE - The power amperage has a sharp, temporary increase. This also may scramble memory or may damage a component. The damage may or may not be immediately apparent.

3) SURGE - This is also an increase of amperage, but it is a powerful overload that can do severe damage. A lightening strike is one example. The equipment can be powered off and still be damaged. The only sure protection is if the equipment is unplugged from the electrical socket or the installation of a UPS (uninterruptible power supply) which can be costly.

4) COMPLETE LOSS OF POWER - Any data changes that were not saved are lost. This can happen if the cord is pulled out or the power goes out from a storm or other outside interference. Make sure that cords are out of the way for the safety of the data as well as other personnel. Outside factors are uncontrollable. This is why saving work frequently is good practice. The only alternative is a UPS. A UPS is usually used for LANs, microcomputers, and mainframes. For individual microcomputers, a UPS is hard to justify because of the cost. Saving data Frequently takes a nominal amount of labor.

A related power problem deals with turning the equipment on and off. Light bulbs almost exclusively blow up when being turned on instead of going out after being on. The same is true for computer equipment. The less frequently it is turned on and off, the better. When a system is turned on, keep it on throughout the work day. Only when equipment won't be used for one (1) or more shifts, should it be turned off to save wear and tear. Frequently turning components on and off creates worse wear and tear.

CPUs The CPU generates a lot of heat. On most CPUs there are vents in front and back. On some models vents may be on the top of sides. Air circulation through the vents cools the CPU. It is crucial to give the CPU breathing room around these vents. If there isn't adequate air space around the system. Place the CPU where there is airspace around it. Don't lean items against the CPU which could block air.

KEYBOARDS There are cleaning kits for keyboards as well as special vacuum cleaners. Follow instructions carefully. Don't wait until they are filthy, or caked up dirt may fall inside during cleaning. With most kits, cleaning compounds are sprayed on cloths. Never spray directly onto the keyboard. Some kits have presoaked cloths or wands.

There are also special covers to place over the keyboard permanently. This prevents dirt from entering. The cover must fit properly, or it will interfere with typing.

MONITORS Dirt and burn-in are the two main problems with monitors. A dirty monitor is hard to read and produces eye strain. Burn-in reduces the useful life of the monitor.

Monitors often have a special non-glare finish. Tap water and commercial glass cleaners can damage this finish. There are special monitor screen cleaners that won't cause damage. Some of the cheaper monitors don't have this finish and can be treated like regular glass. If in doubt, use the special screen cleaners.

Some monitors that produce glare may have had glare filters installed. Some filters are made of anti-glare glass and need the special cleaner. Some of these filters are made of fine mesh. If the cleaner is sprayed onto these filters, they can be ruined. Mesh filters require a special cleaning kit. Find out if a filter was installed and what kind it is.

Burn-in occurs when a monitor is left on for long periods at full intensity. When a monitor is on but not in use, turn down the brightness and contrast as much as possible. On some, the monitor will be completely black; on others, the monitor will have a faint image. This keeps the brightness from etching images onto the screen. On some old monitors you can read old images from program menus. These monitors are hard to read. The tube will need replacing sooner than those that are turned down. There are some programs, called screen savers, that will go into effect when the computer is not in use for a set time period. These programs have pictures that move around the screen to prevent burn-in.

PRINTERS There are three different types of printers - dot matrix, daisywheel and lasers - that are commonly used in business. There are different considerations for each type.

The special vacuum cleaners used to clean keyboards can be used on dot matrix and daisy wheel printers. Debris from tearing continuous feed form paper and paper jams accumulate inside. Don't use the top of the printer as temporary storage area. This causes debris to enter the printer. Major damage can result.

Some printers will try to print even though there is no paper, thus inking the carriage roller. Watch the paper supply! Care must be taken in changing ribbons, or print wheels and heads can be damaged. Don't use force. Done right, ribbons are easy to change.

Lasers have very specific operating instructions for various brands. They are potentially easier to destroy than other printers. Be careful of the type of paper, envelopes and labels you use with your laser printer. There are some made for use with lasers and copy machines. If you use other types of supplies, you can cause severe damage internally through jams and melted envelope glue.

Risks associated with changing the toner cartridge include the possible spillage on internal parts. Follow instructions carefully. Toner kits have cleaning wands for debris, but if you use the wand in the wrong spot, you can cause damage.

Switch boxes, which are commonly employed to share printers, can blow up the laser internally if not properly used. For some brands, the printer must be off before a switch is made, then turned back on. Work with your

supervisor and suppliers to properly use and maintain lasers. Ask questions!

DISKS There are two basic types of disks, the floppy disk and the hard disk. Care of the disks and disk drives is related, so study these sections together.

All disks are vulnerable to magnets since they are magnetic storage devices. Any electrical device generates a magnetic field as electricity is in fact charged particles. If it has a power supply, keep disks away from it. Some security devices can wipe out disks, so pass disks through checkpoints manually. The CPU is an electrical device. Although located inside the CPU the disk drives have shielded construction to keep disks safe. The sides and top of the CPU are not shielded.

Since hard disks are permanently installed, procedures for care will be found under disk drive care below.

Floppies present many problems. There are two basic sizes: 5.25" and 3.5". There are common and specific problems. First the common ones:

1. All disks should be stored upright in disk cases. Room temperature and humidity should be moderate. A range of 50 to 125 degrees Fahrenheit is ideal. Above or below this range can cause the disks to be permanently damaged. Too humid or too dry of an environment will cause performance or static problems. Most offices are fine, but if disks are transported on planes, trains, or in cars, the safety range may be exceeded. Carry the disks or send with instructions so the carrier knows to follow proper transportation procedures.

2. Transport disks in disk mailers or carrying cases. Otherwise disks can be damaged. The 5.25" can bend and warp or dent easily. The 3.5" autoshutter can slide open which allows the magnetic surface to be damaged.

3. Spilled food of drink will destroy disks.

4. Never force a disk into a drive. Perhaps another disks is in the drive, or the drive is damaged. Problems compound with force. Push the disk straight into the drive rather than at an angle. The 5.25" is much more vulnerable to damage from insertion.

5. Never force a disk out. If the disk becomes stuck, a computer technician may be of help. Panels can come loose or parts jam. Special tools can sometimes save both disk and the drives.

6. Always use proper disk labels. Other labels are more likely to cause problems.

7. Don't use rubber bands or paper clips with disks. These can warp and dent the 5.25" or jam the autoshutter on the 3.5" disk.

8. Properly label disks so that at a glance the following is evident: is it formatted, if so for what operating system, who does is belong to and what is on it.

Disks can be write-protected. This prevents information from being from being added or deleted. This protects original disks and data when a restore is dome from a back up to a new original. On a 5.25" disk, cover the write protect notch with the black labels included in boxes of disks. On the 3.5" disks, there is a plastic notch opposite the autoshutter that slides open.

DISK DRIVES There are floppy and hard disk drives to correspond with floppy and hard disks. There are general rules and specific ones about the two types of drives.

In both types, there are magnetic heads similar to those in a tape player. These heads float above the disk being used. A head crash occurs when this head drops onto the disk. This can damage both the disk and the head. Bumping the drive is dangerous for this reason. A bump that does not result in a crash can cause other problems. The head placement can be bumped out of track. This is similar to bumping a needle on a record. This can result in location errors in reading and recording data. This causes damage and/or loss.

Since equipment should not be turned off and an frequently, park heads while a hard disk is on but not used. This moves the heads to a safe zone to protect against crashes. Park the heads before moving a unit or turning the power off. When a reset is done or the power is turned on again, the heads are released.

The best protection for floppy disk drives is properly inserting and removing well-cared for, clean disks inside of them. Improper insertion and removal can damage the drive heads as well as the disks. This includes

placing floppies in sideways or backwards and removing them when the drive light is on. Dirty of damaged disks are like placing dirty or damaged phonograph records on a turntable. There are cleaning kits for drives, but if not properly used, the drives will be damaged. Some companies have operators do some maintenance themselves. Make sure to use proper kit for the drive type after receiving instruction. Many companies have drives professionally maintained. The drives are not only cleaned but tested for accuracy and speed. If there are problems, the drives are calibrated or replaced.

New computers arrive with cardboard or plastic inserts in floppy drives. Save these and insert them when a unit is transported.

MOUSE A mouse is a pointing device found on some computers. Moving the mouse moves the cursor on the screen.

The mouse needs periodic cleaning. The roller ball picks up dirt and transfers it inside. See your manual for proper instructions on taking the mouse apart and reassembling it. There are kits for cleaning the mouse. Again don't the dirt cake up or pour cleaning fluid directly into the mouse. This will cause severe problems.

An inexpensive aid to prolonging the life of your mouse is the mousepad. The pad is a cloth or vinyl covered foam cushion. The mouse moves easily. This saves wear and tear. The pad also increases the operator's ease of use.

A FINAL WORD Again, these are guidelines, but company policies and manufacturers' instructions for proper maintenance technique and scheduling must be given priority. Computers change all the time. Keep up on potential changes in maintenance, especially when new equipment is different than what was used previously.